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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

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TITLE: REPLENISHING AND/OR FLUSHING DEVICE FOR  
A CIRCUIT INCLUDING AT LEAST ONE HYDRAULIC MOTOR

SN: 10/533,095

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AMENDED CLAIMS

Claims 1-20 (cancelled)

21. (new) A replenishing and/or flushing device for a circuit including at least one hydraulic motor having a casing which defines an internal space in which the cylinder block of the motor is disposed, and two main ducts which are connected to a main pump and which constitute respectively a feed main duct and a discharge main duct for said hydraulic motor, the device comprising a replenishing valve connected to at least one of the main ducts and suitable for taking up an open configuration in which said valve establishes a link between said main duct to which said valve is connected and a pressure-free reservoir, and a closed configuration in which the valve prevents such a link from being established, the device further comprising means for causing said replenishing valve to go between the open and the closed configurations as a function of at least one control parameter representing a state of the circuit other than pressure in said main duct to which said replenishing valve is connected, the replenishing valve including a moving member mounted to move between a first position and a second position respectively corresponding to the closed configuration and to the open configuration of the replenishing valve, the device further comprising a control valve which is controlled as a function of said at least one control parameter to allow said moving member to move, said device further comprising an opening control chamber suitable for being connected to one of said main ducts via a first link duct so as to urge the moving

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member towards the second position thereof in which said main duct is connected to the pressure-free reservoir, and a closing control chamber suitable for being connected to a pressurized enclosure in order to urge the moving member towards the first thereof position, and the control valve being controlled as a function of said at least one control parameter in order to connect said closing control chamber to the pressure-free reservoir or in order to isolate said chamber from said reservoir.

22. (new) A device according to claim 21, wherein said control parameter representing a state of the circuit is chosen from a pressure of the fluid in an auxiliary duct of the circuit, from a temperature of the fluid in a region of the circuit, from a speed of the rotor of the motor, from acceleration or deceleration of said rotor, from an active cubic capacity of the motor, from a turning angle of a vehicle driven by the hydraulic motor, from use of a flow rate delivered by an auxiliary pump for controlling auxiliary equipment, from a direction of drive of the motor, a from a braking situation.

23. (new) A device according to claim 21, provided with an actuator suitable for controlling the control valve as a function of a threshold of said at least one control parameter.

24. (new) A device according to claim 23, wherein the actuator is suitable for controlling the control valve as a function of the temperature in a region of the circuit.

25. (new) A device according to claim 24, further comprising a temperature-responsive member co-operating with said actuator, said member being situated in the vicinity of the casing.

26. (new) A device according to claim 21, provided with a replenishing selector suitable for putting the main duct that

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is at a lower pressure into communication with the replenishing valve.

27. (new) A device according to claim 26, wherein the opening and closing control chambers are connected to link ducts suitable for being connected via said replenishing sector to the main duct that is at the lower pressure.

28. (new) A device according to claim 21, wherein the closing control chamber is associated with replenishing resilient return means continuously urging said moving member towards its first position.

29. (new) A device according to claim 21, wherein the link duct of the closing control chamber is provided with a constriction.

30. (new) A device according to claim 29, wherein the closing control chamber is connected to the opening control chamber via said constriction.

31. (new) A device according to claim 30, wherein the replenishing valve has a valve body provided with an inlet suitable for being connected to one of the main ducts and with an outlet suitable for being connected to the pressure-free reservoir, the moving member being disposed in said valve body and isolating said inlet from said outlet in the first position thereof, and the moving member connecting inlet to said outlet in the second position thereof, the opening control chamber being situated at an end of the moving member that is in the vicinity of the inlet of the valve body, and the closing control chamber being situated at the other end of said moving member and communicating with the opening control chamber via a bore in the moving member, in which bore the constriction is disposed.

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32. (new) A device according to claim 31, wherein the control valve has a control valve member that is disposed at least in part inside the valve body.

33. (new) A device according to claim 21, wherein the control valve has a control valve member suitable for taking up an open position in which said control valve member connects the closing control chamber to the pressure-free reservoir and a closed position in which said control valve member isolates said chamber from the reservoir.

34. (new) A device according to claim 33, further comprising control resilient return means which continuously urge said control valve member towards its closed position.

35. (new) A device according to claim 23, wherein the control valve has a control valve member suitable for taking up an open position in which said control valve member connects the closing control chamber to the pressure-free reservoir and a closed position in which said control valve member isolates said chamber from the reservoir and wherein that said actuator is suitable for co-operating with the control valve member in order to urge said control valve member towards the open position thereof.

36. (new) A device according to claim 31, wherein at least one of the actuator and the temperature-responsive member are secured to the valve body.

37. (new) A device according to claim 36, wherein at least one of the actuator and the temperature-responsive member is suitable for moving in the valve body, and is urged continuously by resilient return means towards an abutment that is secured to the valve body.

38. (new) A device according to claim 21, wherein the control valve is a progressive valve.

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39. (new) A device according to claim 31, wherein said valve body is disposed in a bore in the casing.

40. A device according to claim 21, wherein the replenishing valve has an outlet that is connected to the pressure-free reservoir via the internal space inside the casing.